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ABSTRACT

This chapter examines the role of inquiry in the development of instructional leadership in classroom teachers. It focuses on the impact that inquiry has on professional development, the promotion of professionalism, and collaboration through data-driven communication. The structure and function of leadership among these concepts serves as the organizing theme. Teachers' perspectives in acquiring, implementing, reflecting on, and restructuring their knowledge of inquiry and leadership in the profession of teaching are given to provide a first-hand narrative of those processes. These writings are taken from responses to interview questions, reflective journal entries, unsolicited teachers' writings, and conversations among educators in the Professional Development System of the Watson School of Education at the University of North Carolina at Wilmington. The teachers' narratives illustrate their passage through stages of professional development, leadership, and inquiry, and identify factors affecting the development and transition of the teachers through those stages. This chapter concludes with a summary of lessons learned about what teachers think and feel about leadership and inquiry and ways other educators can support teachers' leadership development through inquiry. (Contains 36 references.) (Author/MVL)

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# 11 Teachers' Perspectives: Developing Instructional Leadership Through Classroom Inquiry

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This chapter examines the role of inquiry in the development of instructional leadership in classroom teachers. It focuses on the impact that inquiry has on professional development, the promotion of professionalism, and collaboration through data-driven communication. The structure and function of leadership among these concepts serves as the organizing theme. Teachers' perspectives in acquiring, implementing, reflecting on, and restructuring their knowledge of inquiry and leadership in the profession of teaching are given to provide a first-hand narrative of those processes. These writings are taken from responses to interview questions, reflective journal entries, unsolicited teachers' writings, and conversations among educators in the Professional Development System of the Watson School of Education at the University of North Carolina at Wilmington. The teachers' narratives illustrate their passage through stages of professional development, leadership, and inquiry, and identify factors affecting the development and transition of the teachers through those stages. This chapter concludes with a summary of lessons learned about what teachers think and feel about leadership and inquiry and ways other educators can support teachers' leadership development through inquiry.

The Professional Development System (PDS) of the Watson School of Education at the University of North Carolina at Wilmington (UNCW) is a comprehensive university-public school partnership. This collaboration between higher education and public schools is designed to align efforts and resources for the improvement of both the quality of preparation for teacher interns and the performance of public school students in southeastern North Carolina and to close the gap between theory and practice. Approximately 750 educators affiliated with 47 schools in 10 school districts participate in formal

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collaborative agreements with the Watson School of Education. This collaboration is facilitated by ensuring that partners are responsive to each other and by widely disseminating knowledge about best teaching and administrative practices. All educators within the collaborating districts, known as PDS partners, have begun to redefine and clarify the professional roles of teachers, administrators, and university faculty in ways consistent with the needs and demands of the 21st century. The PDS partners, by combining, focusing, and utilizing their collective talents, knowledge, energies, and resources, are striving to achieve measurable improvements in classroom learning for all students at all levels. PDS activities include discussions and seminars sponsored jointly by school districts and UNCW, inservice workshops for renewal credit sponsored by school districts, inservice workshops sponsored by UNCW, and UNCW courses in learning-centered supervision.

A major PDS goal is to encourage research and inquiry by all partners. In accord with national and state standards for instruction, university and public school students are taught to use inquiry not only to learn curriculum but also to ask and answer questions about their own learning. University and public school faculty are engaged in variously-funded research agendas to examine the intracacies of the partnerships and their effects on public school and university students and teachers. All PDS faculty contribute to data collection for ongoing system-wide research while those who wish contribute to design, data analyses, and presentation phases. Partnership teachers are invited to participate in inquiry projects in order to facilitate understanding of the concepts of educational research and how that research can be conducted and applied in public school classrooms. Many teachers are initially reticent and somewhat unprepared to contribute to research efforts, especially at design and analysis levels.

In the secondary program, high school teachers are introduced to inquiry projects by assisting teacher interns who complete an inquiry project as a requirement during the internship experience. The interns had previously developed some facility with an inquiry project during coursework. Although the specific requirements of format varied by discipline area, all inquiry projects included documentation of decision making based on collection and analyses of data (Smith, 1998).

In ongoing discussions among university science methods instructors and public school science teachers, it was evident that teachers struggled with knowing how to acknowledge and express how they have come to know what they know. As part of inservice-credit

workshops, teachers were invited to document the data collection and assessment associated with decision making and share that documentation as a Teacher-Directed Classroom Inquiry Project (TDCIP) (Rogers, 1998). The TDCIP was designed to address not only a need for a structure to support inquiry, but also to promote the professional development of those teachers.

**Inquiry in Professional Development**

The term professional development has been used in education to describe myriad activities conducted for the alleged improvement of educators. While some activities are designed to emphasize professionalism among participants through efforts designed to enhance self-esteem, content knowledge, or increased documentation of teaching events and other means of professional communication, other activities are designed to emphasize the developmental aspects such as assessing participants' growth on a selected variable, promoting participants' self assessment, or emphasizing particular factors associated with educator development.

Those professional development attempts which integrate components aimed toward promoting professionalism within a developmental context report higher gains in participants' satisfaction with the activity, increases in targeted variables such as content knowledge, and continued impact of the activity after its conclusion (Swanson, 1995). The goal of professional development is to assist in the formation of professional practice, that is, the practice of an educator who is knowledgeable in content and pedagogy (Shulman, 1981, 1998; Shulman & Sparks, 1992) and applies that knowledge consistently, competently, and confidently. That educator routinely assesses his or her knowledge and its application for ways in which to improve and routinely documents and communicates his or her practice with colleagues. This is a complex process requiring a repertoire of knowledge and experience in the area of practice (Hord, 1997). There is a clear need for inquiry within the context of professional development efforts (Byrd & McIntyre, 1999) if educators are to develop and objectively assess evolving competencies leading to professional practice.

In this context, inquiry can be defined as a search for information and insight gained through documented collection, analyses, and reporting of data. Although inquiry obviously provides a method to facilitate professional practice among educators (Banathy & Jenks,

1990; Lee, 1990; Maslin-Ostrowski, 1998; National Research Council, 1996; Swanson, 1995), many educators are hesitant or feel unprepared to engage in inquiry. Therefore, fostering a culture of inquiry within a specific educational system requires more than a statement of desire to do so (Banathy & Jenks, 1990; Hord, 1997; Lee, 1990; Oborn, 1996; Swanson, 1995; Watt & Watt, 1991). For these reasons, most novice inquirers respond favorably to a structured inquiry project (Hutchings, 1996; Fullan, 1993; Rogers, 1998; Watt & Watt, 1991). Inquiry projects assigned to teacher interns during the internship experience (Smith, 1998), whether conducted by practicing teachers individually or collaboratively with interns and other teachers, have been shown to facilitate thoughtful analysis and professional development in teacher practice (Wetherill, Rogers, & Calhoun, 1999). The inquiry project is seen as a means of documenting and thereby analyzing the decision-making processes inherent in teaching. Through the project the decisions are connected to the data collection means and sources (Rogers, 1999). Many teachers have stated that they do what they do because they know it works. Inquiry projects require a more thoughtful analysis of exactly what teachers are doing and how they are deciding what works.

In the TDCIP used in science inservice workshops (Rogers, 1998), teachers complete two tasks, the planning guide and the report guide. The planning guide directs the process of designing an inquiry project by helping teachers select an inquiry topic, consider additional information needed to focus on a particular inquiry, choose data sources and means of collection most likely to match their inquiry, determine how the data can be analyzed to address the inquiry, and acquire appropriate approval which may be especially important for teacher interns. The report guide structures a process of communicating results of an inquiry project, through stating the inquiry and appropriate background information, describing the procedure, findings, and conclusions of the project, explaining further implications of the project from the teacher's perspective, and providing references for interested readers. At the end of the internship experience, the teacher and teacher intern inquiry projects are shared among teacher interns, partnership teachers, and other school district and university educators to promote discussion of professional development issues through roundtable presentations. Teachers and interns report gains attributed to data-based discussions and decision making whch include greater

confidence, professionalism, and sense of control of the variables associated with teaching.

**Data-Based Collaboration**

The key benefit to educators engaging in inquiry is the data-based collaboration made possible through conversations based on targeted data rather than opinion and inferences alone. When teachers engage in discussions about lesson design, material selection, homework choices, and other instructional decisions armed with the data carefully collected in their own classrooms, the tone focuses on professional considerations rather than personal considerations alone. Some teachers, especially newer teachers, report feelings of ownership and contribution to the profession and some teachers, especially more experienced teachers, report a willingness to reconsider strongly held concepts of viable practice (Rogers, 1999).

**Leadership Through Inquiry**

Leadership is needed, not only to promote documented inquiry, but also to encourage the use of data-based inquiry to make decisions (Hord, 1997; Lee, 1990; Maslin-Ostrowski, 1998). To be valid and useful to educators, inquiry requires a deliberately structured approach (Banathy & Jenks, 1990; Oborn, 1996; Rogers, 1998; Watt & Watt, 1991). Further, if leadership in educational settings is to be successful in meeting instructional goals, then it must promote collaborative, collegial relationships in authentic ways (Darling-Hammond, 1998; Swanson, 1995). Therefore, leaders who organize and communicate school culture in ways that promote authentic and collaborative inquiry approaches to decision making will be more likely to see progress in meeting instructional goals (Radford & Ramsey, 1996).

Most of the literature on leadership and inquiry points to school administrators as the instructional leaders of the school with the responsibility for setting the tone of inquiry in the school (Banathy & Jenks, 1990; Greenfield, 1987; Lee, 1990; Oborn, 1996; Peterson, 1985; Swanson, 1995; Wiggins, 1994). School administrators operating within a hierarchical leadership structure express difficulty with developing this level of involvement in teachers' professional development in addition to other managerial and organizational duties. Some arguments for teacher involvement in inquiry processes are often strong on symbolic involvement without specific suggestions for transitions to that ideal engagement, or conversely, provide subordinate

tasks for teachers to complete without involving them in the overall inquiry design. Clearly, teachers who are authentically engaged in inquiry that is meaningful and professional will benefit most from inquiry (Acheson & Smith, 1986; Boyle & Skopp, 1998; Darling-Hammond, 1998; Fullan, 1993; Strodl, 1992) and will additionally develop leadership roles supporting instructional goals (Bird & Little, 1985; Larson, Mayer, Kight, & Golson, 1998; Rogers, 1999).

**Instructional Leadership**

Leadership among teachers has been promoted from a number of perspectives. If educators use inquiry as a way to document and evaluate decision making, then the role of leadership is to focus decision making on appropriate data collection and analyses. Leaders who promote clearly-communicated goals for the inquiry will be in a better position to see those goals met because others conducting inquiry will be seeking to collect and analyze data to address similar concerns. For example, a focus on what conditions best help ninth grade students perform better on an end-of-course achievement test is different from a focus on preparing eighth graders to use higher order reasoning skills. Leadership using an inquiry approach requires a clear and readily communicated focus on instructional goals in order to provide the framework for teachers' inquiry. We will use instructional leadership to mean a focus on communication, organizational structure, and professional development that promotes instructional goals above other goals. This is accomplished through an inquiry approach to data-based decision making.

In the past, instructional leadership was considered the domain of administrators who imposed practices and structures from the top down. Many of the leadership models were borrowed from business, medical, and other organizations and modified in an attempt to fit the educational arena. The extent to which those models have been successful seems to be the degree to which they acknowledge and incorporate a focus on instructional goals from a perspective of intentional inquiry (Banathy & Jenks, 1990; ERIC, 1987; Irwin, 1985).

A useful leadership model for educators is one in which the structure of the model supports the functions leading to the targeted instructional goals (Blase & Blase, 1998; Erickson, 1991; Krug, 1992; Larsen, 1987; Lee, 1990). For example, if the goal were a significant increase in third-grade students' mathematical reasoning

skills, it would be counter-productive to reward teachers for students' performance on a standardized test that did not measure mathematical reasoning skills but assessed memorization of discrete mathematical information. It would be further detracting to measure teachers' leadership skills in terms of how many other third-grade teachers were convinced to promote memorization of those discrete facts alone. Consider, however, the impact of students, teachers, administrators, and project directors making decisions about progress by analyzing formative and summative assessments of the actual targeted goal and bestowing rewards based on measured growth. Measuring progress within the context of an inquiry approach provides meaningful data and analyses upon which rewards may be based. Student, teacher, and administrator efforts tend to be focused on what is rewarded; therefore, rewarding what is stated as the goal of a model, in response to collection of data measuring progress toward that goal, is more likely to promote attainment of that goal (Krug, 1991; McEwan, 1994). Clearly, data collected for accountability instruments presently used can be a meaningful and necessary tool in the classroom. Instructional leadership dramatically impacts the uses and purpose of these data. Measuring progress within the context of an inquiry approach provides the most meaningful data and analyses (Hord, 1997; Lee, 1990).

### Teachers' Perspectives: The Stages of Inquiry

Teachers who acquire and implement inquiry processes in their decision making move through transitional stages as they develop conceptual understanding and facility with those processes. In order to document and clarify transitions, an inquiry project was conducted to examine communication documents and products of science teachers learning to use inquiry. As part of district-sponsored inservice science workshops, teachers participated in a series of meetings over the school year focusing on learning to implement inquiry projects (Rogers, 1999). These teachers also participated in PDS-sponsored seminars and attended meetings with other PDS colleagues. The following is a collection of teachers' perspectives in acquiring, implementing, reflecting on, and restructuring their knowledge of inquiry and leadership in the profession of teaching. These quotations are taken from responses to interview questions, reflective journal entries, and unsolicited teacher writings and conversations among educators in the PDS. The teachers' comments direct us to examine three stages of inquiry as well as the professional development and leadership issues

associated with each. These three stages emerged from qualitative analyses of 57 teachers' work during two academic years.

The three stages of inquiry described, Beginning Inquiry, Transforming Inquiry, and Leadership Through Inquiry, include transitions in self-confidence, professionalism, collaboration, collegiality, and leadership.. Data from three science teachers--with the pseudonyms Beth, Nasheem, and Dodson--are given in order to highlight the identifying characteristics of each stage. Beth is a 48-year old female, a first grade teacher who has taught grades K-4 for 17 years in the same school district, and serves as a science and mathematics consultant for her district. Nasheem, a 25-year old female, is a seventh and eighth-grade general science teacher with 2 years of experience. Dodson, entering a second career at 51, is a lateral-entry high school physics and chemistry teacher with 30 years of military service, which included some instructional duties.

**Beginning Inquiry Stage**

Teachers at this stage must first accept the notion that all teachers are capable of conducting inquiry. With little or no experience at documenting their work, and little confidence in their own conclusions about their work, Nasheem and Beth began the inquiry projects from different levels of teaching experience, but similar levels of understanding about using inquiry in their own work.

Nasheem was asked by her department chair to participate in a TDCIP workshop. She attended each meeting and dutifully completed the associated tasks, but was initially hesitant to talk about anything not previously mentioned by others. For example, her first inquiry project was identical to a colleague's design and purpose; only her class data differed. She stated the same conclusions as her colleague, even though her data did not reflect two of those conclusions. In her analysis of the initial project she stated, "This is a different approach for me. I am more comfortable following an established curriculum. . . . it is rather disconcerting to question my teaching so directly." Nasheem was more comfortable as a follower and saw her professional development as the responsibility of school administrators: "I prefer to gather information about improving my teaching through workshops with many handouts and resources." As Nasheem listened to others sharing their projects, she began to take notes. At a break, she approached the workshop leader and asked, "Is it okay, you know, valid, for teachers to conduct their own studies?" In response to an

affirmative answer, she said, "Then, I could learn anything about my class that I wanted, couldn't I?" After that break, Nasheem questioned other presenters about details of their design and data collection procedures. Her second inquiry project was her own design, an investigation of the differences in problem-solving approaches of seventh and eighth graders.

Beth participated in the same workshop and nodded affirmatively through introductory comments about the workshop's focus on inquiry in teaching. As discussion began, she provided examples of inquiry in her classroom conducted by her students. She stated convincingly, "Children learn through inquiry!" and others nodded in agreement. Beth then explained to us the role of inquiry in national and state standards for instruction in science and mathematics. Teachers continued to nod, then one expressed concern about misunderstanding—did inquiry in teaching mean inquiry done by students or by teachers? Beth turned and paused at that comment, then looked to the workshop leader and asked, "We are talking about inquiry in the curriculum, aren't we?" When told that inquiry was for students and teachers, Beth said, "Now, how in the world can I have time for that? I don't have a planning period. I spend my afternoons getting materials ready for my students' investigations. Besides, isn't that kind of inquiry really research that has to be done by experts?" Discussion continued into decisions teachers make and how those decisions are made. Beth later wrote in her reflection of the day, "It never dawned on me that I am conducting inquiry projects all the time. If I will just take the time and energy to document those, I can know more about what I am learning. I won't have to rely only on others' conclusions about teaching." Beth designed an inquiry project to examine her students' understanding of selected concepts as presented in student-led conferences with parents.

Nasheem and Beth each struggled with the role of inquirer, though from different levels of experience. Nasheem was less of a risk-taker than Beth. Nasheem was not aware that she could ask questions about the events of her teaching and Beth was not aware that she could ask her own questions. Both struggled with the issue of the validity of their work. This concern is common among teachers and teacher interns upon first encountering the idea of conducting their own inquiry. Activities and discussion to examine basic research design concepts often satisfy that concern. After such discussion Nasheem wrote in her reflective journal entry, "I am not yet ready to do the research that is

generalized to other groups, but I am excited to study my own class and see what is real for us. I will document carefully what happens and ask for assistance in improving my design."

Both Nasheem and Beth overcame their initial beliefs that they were not competent to inquire about their teaching. Both developed ways of thinking about teaching that promoted data-based collaboration and decision making. The defining characteristic of the beginning inquiry stage is acceptance and implementation one's own ability to conduct inquiry.

**Transforming Inquiry Stage**

Some teachers begin as Nasheem and Beth did and then move into the transforming stage of inquiry. Others, like Dodson, already accept and or use inquiry processes. Dodson did not attend the initial workshop with Nasheem and Beth because he was not hired until after the workshop had begun. As a lateral entry teacher with no formal preparation in education, he was required to take selected courses at the local university. Dodson scheduled a meeting with the instructor of the secondary science methods course and walked in with a battery of questions. He was overwhelmed with the range of responses from the students and confused about why some lessons worked and others did not. Comparing his high school students with the military personnel he had trained for years, Dodson expressed displeasure with the lack of discipline and respect shown by high school students and the infrequent and inconsequential responses by administrators. "How am I supposed to teach in this chaos? I try what ought to work and sometimes it does and sometimes it doesn't. I'm not sure I should be a teacher." Armed with science education resources and a format for data collection, data-based discussions, and inquiry design, Dodson returned to his classroom and began the process of conducting his own inquiry. He had formed questions and used information to make comparisons of his students and the military personnel he had previously taught. What Dodson needed was a way to use his questions to change his practice.

A week later, he dropped by to report on his progress. "I think I'm getting a foothold in this. I needed to get more information about what the kids think. I had thought they'd learn chemistry and physics because those are interesting subjects, but the kids want it to be sensible to them, connected to their world. I have to make it meaningful. Now I'm going to try different ways of doing that." He

described the inquiry projects to be conducted the following week and accepted advice about revisions. Subsequent weekly visits provided further refinement of his design and data analyses as well as a record of his conclusions.

At the end of the semester, Dodson wrote about his progress, "Looking back over my journal entries, I see that I have found a way to make sense of the chaos. I have ways of understanding what is happening and how my students are learning. I can directly assess their thinking rather than relying only on inferences from the chapter tests. I can see the kids going off course and make adjustments early rather than waiting for them to fail. Teaching is still extremely challenging, but it is within my reach."

Dodson's inquiries changed his perception of his own teaching and impacted his instructional practice. Dodson also found a change in his communication with other teachers. In another section of that same reflection, Dodson reported on his interactions with colleagues. "When I first started here, no one was interested in my opinions, only in telling me what I should do, and they didn't tell me the same things. Now when we talk about what works, I can show data from my inquiries. I don't have to defend my opinions, only share the data and what they mean to me. I've asked others to help me interpret the data and they have become interested in what I am doing. A couple of other teachers are trying out my inquiry projects in their classes. It's nice to have a professional level of discussion, rather than ranking opinions by years of experience." Dodson expressed a result often experienced by teachers who share their inquiry projects. He reported a higher level of confidence and professionalism in his interactions with colleagues. Data-based collaboration promotes professional discussion.

The key characteristic of transforming inquiry is that it impacts the teacher's practice, communication with other educators, and professionalism. Teachers who utilize inquiry processes find transforming effects throughout their use of inquiry. The transition to the leadership stage of inquiry is often subtle, usually beginning with a change in the focus and tone of conversations with other educators. Dodson began to see changes in his leadership coming from the changes in communication. By sharing what he wanted to know and how he was trying to learn, he led others to gather data with their own students. Dodson changed his perspective of the role of teacher. He

began with a view of following orders and began to develop a sense of himself as instructional leader in his classroom, school, and district.

**Leadership Through Inquiry Stage**

Some teachers who use inquiry processes are already in positions of leadership and begin to show inquiry leadership characteristics with the first inquiry project. Many teachers who move to a leadership stage of inquiry transition into it, as Dodson did. In his conversations with other teachers, Dodson gently asked what data others had to support their claims. He shared his own data and began to collect research literature that reported on the topics he studied. He asked for explanations of theories said to support particular strategies. Dodson became a source of advice and support for other teachers and challenged them to know more about their own teaching. A teacher in Dodson's department remarked, "He has sparked some interesting conversations around here. Whenever we hear a claim for a new strategy or announcement of a new workshop, we take it to Dodson for his comments. Somehow that usually leads to us collecting data in our classes. It's great to have our own data to use in making decisions. You know, we looked at students' success and whether they took algebra before, after, or with chemistry. That information helped us make decisions about course sequencing as we switched to block-scheduled classes."

Beth was already in positions of leadership in her district. Many teachers and administrators counted on her to know the national standards, the state curriculum, and the district procedures and policies. Indeed, Beth had proven to be a strong resource. After accepting the role of inquirer, Beth began to question all those rules. She would often ask, "Why is this a good idea?" as she considered various aspects of what is expected of teachers. She decided that it wasn't enough to know what the mandates were; she needed to know why those positions were reasonable. She wrote, "Why should I take someone else's word for what works with my students? I can see for myself. When I hold workshops to tell others about the standards, or the curriculum, I can also show them how to test those ideas in their own classes." Beth was not questioning the standards from a position of refuting them, but from a position of better understanding the rationale for those standards.

Nasheem presented her inquiry projects at each of the monthly meetings of the inquiry workshop. At the end of that school year,

Nasheem wrote about her thinking, "This has been quite an experience for me. I have learned how to look carefully at my teaching and my students' learning. I have also learned how to talk with other teachers about teaching and learning, not just to exchange 'war stories,' but to really talk about what we know and how we know it. Sharing my inquiry projects with others at these workshops has helped me to be more sure of myself." A mentor teacher at Nasheem's school reported that Nasheem was more involved in department and faculty meetings and seemed more relaxed about her interactions with other teachers. Nasheem turned to her and said, "I feel like one of the faculty now."

**Lessons Learned**

From the perspectives of Nasheem, Beth, and Dodson, as well as other teachers and teacher interns who have utilized inquiry projects, six lessons emerged. First, learning to use inquiry takes time, support, and willingness to take risks. Learning to use inquiry requires plenty of time to try out ideas, muddle through data, and reflect on conclusions. Periodic meetings over the course of an academic year are much more beneficial than one-shot attempts.

Second, as Beth and Nasheem explained, inquiry is often seen as something that experts must do. For teachers who are often overwhelmed with the range of expectations for their time, the idea of conducting inquiry too is not palatable. Teachers make many decisions a day and gather data with which to make those decisions; inquiry projects provide a structure for documenting that process so that it can be shared and refined. It is helpful for teachers to see inquiry as an organizing theme for the myriad tasks of the day-to-day routine. Teachers need to see themselves as inquirers.

Third, learning to use inquiry occurs more quickly and shows more impact on practice when the inquirer has many opportunities to discuss the process with other inquirers. Some teachers prefer to talk it through while others prefer to share written drafts and feedback, but the process of considering and reconsidering ideas should not be short circuited. In fact there seems to be no top limit for this activity. The more sharing of ideas that occurs, the greater understanding of concepts, inquiry processes, and impact on practice. Teachers need to know that it is fair to get ideas and advice from others. Inquiry need not be a solitary attempt and tends to be more effective as a collaborative effort.

A fourth lesson learned is that inquirers develop understanding of the concepts and processes of inquiry from more educated peers. As teachers gain success as beginning inquirers, they benefit from opportunities to learn research concepts, and to read and analyze research reports. Research is a form of inquiry and can provide structure and models for teacher inquiry. The difference between a beginning inquirer's project and a researcher's report is in establishing validity, reliability, significance, and if appropriate, the extent to which the study could be generalized. As research understanding and skills develop, teachers begin to see research as the inquiry of others and look for ways to establish and publish their own work as research.

A fifth lesson is that inquiry promotes professional development and is most effective in conjunction with teachers' established professional development activities. When teachers are engaged in inquiry projects, they begin, continue, or re-initiate professional development activities. New strategies, programs, and curricular materials are subjected to classroom testing. Collaboration efforts are focused on data-based decisions. Many teachers report seeing a connection between the inquiry projects and criterion-based licensure or certification standards. One teacher, a veteran of 23 years, reported, "I saw Nora go through the National Board Certification process last year and thought there was no way I wanted to work that hard. Now I feel like it makes more sense. There are several opportunities for inquiry within those tasks."

A sixth lesson and the focus of this chapter, is that inquiry promotes instructional leadership by providing a structure that is standard enough to be readily communicated, but flexible enough to address various questions, data sources, and issues in education. It is neither a simplistic nor linear approach. Rather, all instructional leaders, including teachers, must share a common vision and take risks to bring that vision to reality. Each must be willing to examine the results of appropriate data collection and analyses and act on the conclusions. Change is not easy to shepherd, but data-based discussions are more likely to encourage change. Support of those who take the risks of trying to change and endeavoring to grow is critical. Nasheem, Beth, and Dodson each had the advantage of department chairs and school administrators who supported their inquiry and data-based collaboration. Each had access to a science educator for resources, suggestions, and encouragement. Each had the advantage of sharing his or her work with receptive colleagues. Support is critical

for instructional leadership and it must be ongoing, because teachers are not finished products, but rather works in progress (Darling-Hammond, 1998). One teacher described it this way:

> *We have realized and celebrated a lack of closure; we will never be finished because each lesson we learn poses new questions. We are resolved to look for progress in our growth, rather than seeking a sense of accomplishment in ending that growth.*

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